The Examiner states as her basis for the restriction requirement that in this case the process as claimed can be practiced by another materially different apparatus, as the method does not recite the particulars of the apparatus, such as the conveyor. The Examiner further states that the process as claimed can be practiced by hand. Claim 9, however, as amended, does recite all particulars of the apparatus, including the conveyor.

The process as claimed could not be practiced by hand because, if for no other reason, claim 9 requires use of an apparatus. The process can be practiced only by an apparatus comprising the required elements of claim 9. Claims 1-7 comprise such an apparatus.

The inventions of what the Examiner labels as Group I (claims 1-7) and Group II (claims 9-11) are therefore not distinct, and only one search is required for both groups.

It is respectfully requested that the restriction requirement be withdrawn.

Drawings

Attached is a replacement Fig. 1, identified as "Replacement Sheet", amending Fig. 1 and showing every feature of the invention specified in the claims, including a schematic for the holder (2a) for the reactor and the reactor tubes (6a). The magazine (6) is also referred to as the Catalyst Sampler. The conveyer is illustrated by the line and arrow between the Catalyst Sampler and Reactor and is now labeled 6 b.

Also attached is a marked-up copy of Fig. 1, labeled "Annotated Sheet Showing Changes" .

Fig. 1 shows via a dotted line around the Flow Module that comprises the improvement to the remainder of the apparatus that comprises an old machine, such as an automated thermal desorption unit.

No new matter is added to the drawings.

Specification

Attached are replacement paragraphs for the last paragraph on page 6 and the third paragraph on page 7 to which are added references to amended Fig. 1.

Claim Rejections Under 35 USC § 112

Claim 11 is rejected on the grounds that "It is not understood how the reactor tube, holder and magazine have an automated thermal desorption unit. The specification does not explain how, and the drawings do not show the elements let alone each having an automated thermal desorption unit."

The clarification and explanation the Examiner seeks is on Fig. 1 and in the paragraph on page 7, beginning on line 15. Fig. 1 shows the essential elements of an automated thermal desorption unit as described in the last mentioned paragraph. US Patent No. 4,976,924 ('924), which is incorporated by reference into the instant specification, provides minute detail of an automated thermal desorption unit, including reactor tubes, holder and magazine. Not only is it fully conceivable how each of the reactor tube, holder and magazine comprise an automated thermal desorption unit, '924 illustrates exactly how it can be accomplished.

With regard to claims 9-11, the Examiner asks "does the flow module with the probe contain and inject the carrier fluid as recited in claim 9"? This is clearly explained in the description of Fig. 1, beginning on page 5, line 11. The flow module is in fluid communication with the reactor (tube containing catalyst) by

means of a feed line through which passes a carrier fluid obtained from a Carrier Flow Generator. The carrier fluid contains a probe that is defined in the first full paragraph on page 6 as any chemical agent with which the sample of solid material (i.e. catalyst) can be tested.

As for the question how can the probe and/or additional carrier fluid inject into the carrier fluid flow, Fig. 1 shows Pulse Generator 5 that injects into the line going to the Reactor. It is explained in the paragraph beginning at line 16 on page 5 that the Pulse Generator may be arranged to generate a pulse of probe or additional carrier material. It may be desired to generate additional carrier fluid (additional to what is being provided by the Carrier Flow Generator) from the Pulse Generator for reasons explained in the paragraph bridging pages 5 and 6.

Claim Rejections Under 35 USC § 102

It is important to understand that the present invention comprises a method and apparatus for testing samples by means of a probe. As mentioned above, the probe is any chemical agent with which a sample of solid material can be tested (page 6, lines 13 and 14). Claims 1 and 9 have been amended to particularly point out the precise nature of the probe.

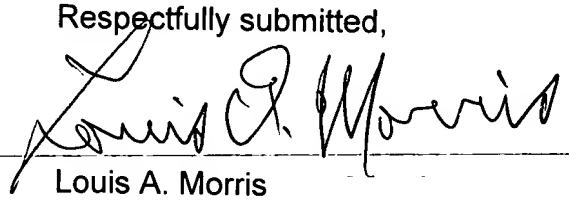
It is equally important to understand that the disclosure of '924, cited by the Examiner and incorporated by reference into the instant specification, is that of the machinery or means for that portion of the present invention outside the dotted line of Fig. 1, which is the tube magazine and tubes, tube holder, reactor and module for analyzing whatever reaction products flow from the reactor. The only thing occurring in the tubes of '924 is thermal desorption. The air that is passed through the tubes of '924 is to purge and clean the tubes and is not in any way analogous to the probe of the present invention as now clearly defined in the instant claims.

Likewise, US 5,866,004 (Houck et al) cited by the Examiner, gives no hint to the testing of samples by means of a probe. Houck et al is concerned with an automated supercritical fluid extraction and collection system. There is nothing in Houck et al (nor '924) that corresponds to or would lead one of ordinary skill in the art to the present invention, particularly that portion of the present invention falling within the dotted line of Fig. 1.

Conclusion

In view of the above discussion and amendments to the instant claims all grounds for rejection and restriction have been obviated. It is respectfully requested that claims 1-11 be allowed.

Respectfully submitted,



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CLAIMS

1. (currently amended) An apparatus for testing samples of a solid material contained in a reactor tube, said apparatus comprising a holder for said tube, a flow module for generating a carrier fluid flow containing a probe comprising a chemical agent for testing said solid material through said tube positioned in said holder, a magazine for additional tubes, and a conveyor for replacing said tube positioned in said holder with an additional tube from said magazine.

2. (original) The apparatus of claim 1 wherein said solid material comprises a catalyst or an adsorbent.

3. (original) The apparatus of claim 1 wherein said reactor tube, said holder for said tube, said magazine for additional tubes, and said conveyor for replacing said tube positioned in said holder with an additional tube from said magazine
comprises an automated thermal desorption unit.

4. (original) The apparatus of claim 1 wherein the flow module further comprises an injector for injecting a probe and/or additional carrier fluid into the carrier fluid flow.

5. (original) The apparatus of claim 4 wherein the injector is positioned relatively close to the holder.

6. (original) The apparatus of claim 1 wherein said flow module comprises a feedline for establishing fluid communication with a tube that is placed into the holder and wherein the cross-sectional area of the lumen of the feed line is substantially smaller than the cross-sectional area of the lumen of the tube.

7. (original) The apparatus of claim 1 wherein means are provided for accurately controlling the temperature of said tube in said holder.

8. (original) The apparatus of claim 1 which further comprises an analysis module for at least partially determining the composition of the reaction products exiting said reactor tube.

9. (currently amended) A method of testing a plurality of samples of a solid material contained in a reactor tube by means of an apparatus comprising a holder for a tube, a flow module for generating a carrier fluid flow containing a probe comprising a chemical agent for testing said solid material and a magazine for additional tubes, which method comprises placing said tube in said holder, generating a carrier fluid flow through said tube, and replacing said tube with an additional tube from said magazine via a conveyor.

10. (original) The method of claim 9 wherein said probe and/or additional carrier fluid is injected into the carrier fluid flow relatively close to said holder.

11. (currently amended) The method of claim 9 wherein said reactor tube, said holder, ~~and~~ said magazine and said conveyor comprises an automated thermal desorption unit.

Replacement Sheet

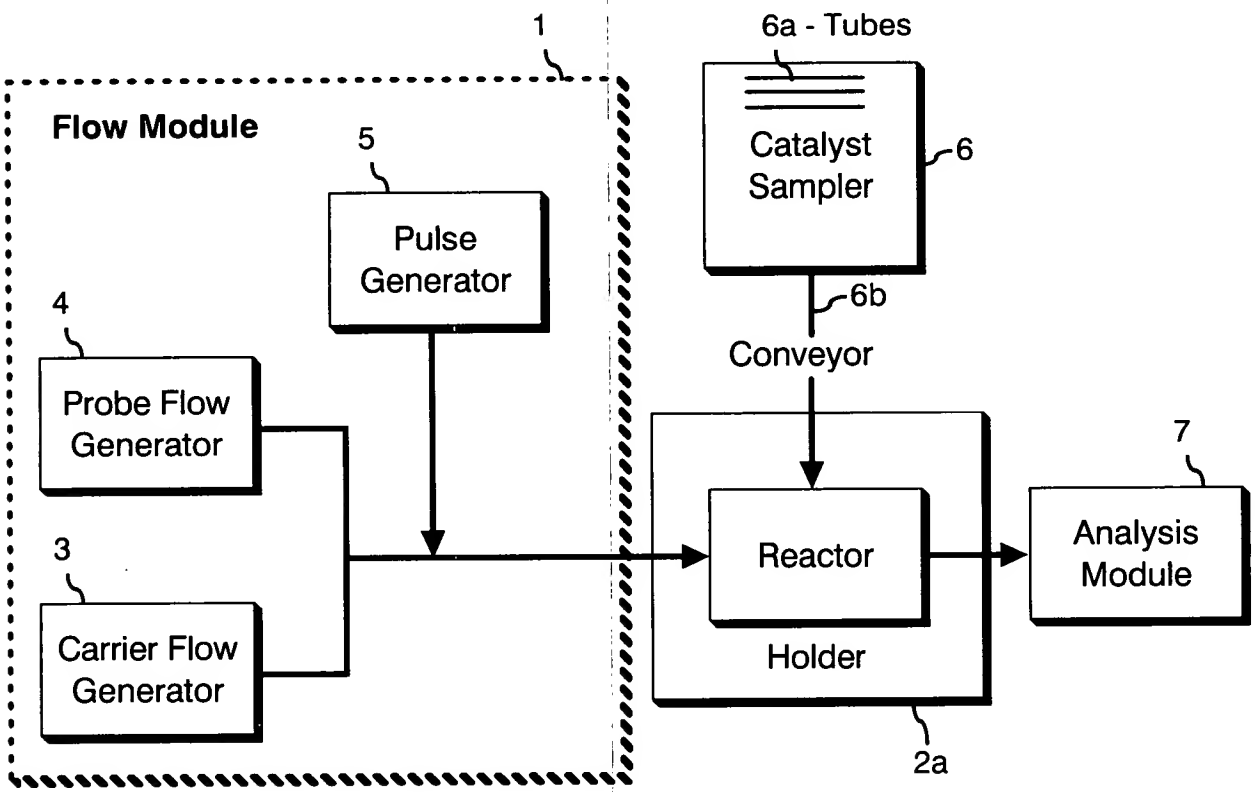

Fig. 1

Annotated Sheet
Showing Changes

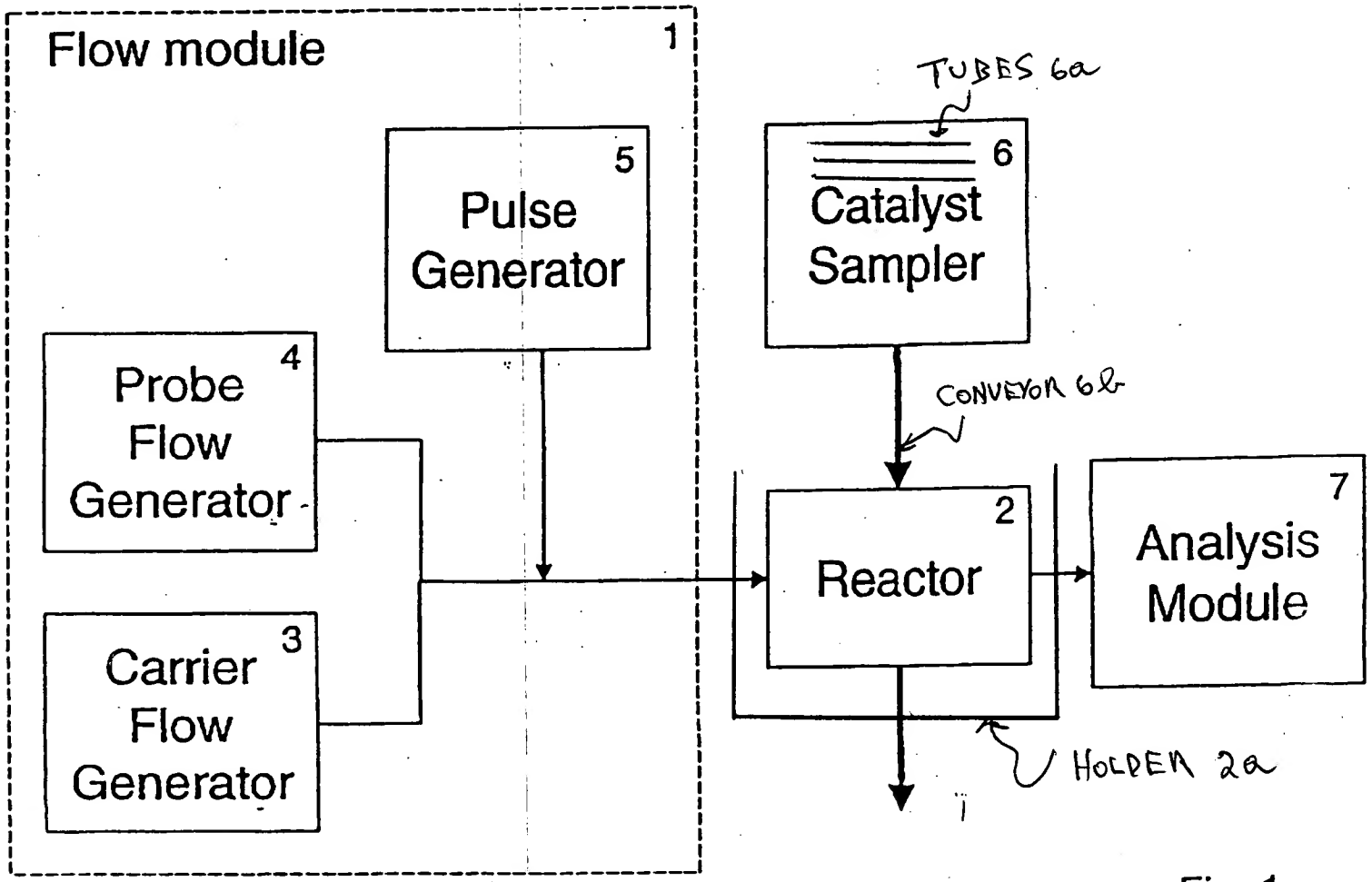

Fig. 1

Replacement of last paragraph on page 6

The aforementioned feed line is connected to a reactor tube 2 placed in a holder 2a. Upon insertion of a tube in the holder, a connection is established between the feed line and this tube. This connection is preferably such that the flow of a carrier fluid containing a probe is left substantially undisturbed by, e.g., accelerations or changes in pressure, temperature or surface conditions of the inner wall of the feed line or the reactor tube 2. Disturbing the carrier fluid and/or the probe is likely to result in loss of information obtainable from the experiments.

Replacement of third paragraph on page 7

A catalyst sampler 6 or magazine is positioned near the holder for storing reactor tubes 6a containing catalyst samples and for replacing the tubes in the holder via a conveyor 6b. The catalyst sampler should preferably be able to contain a large number of samples, e.g., ten, thirty or fifty or more. Also, it is preferred that means are provided to condition the stored samples.